

**Amendments to the Drawings:**

The attached sheets of drawings include changes to Figures 1, 2 and 3; each of those figures has been amended to include a "Prior Art" legend, and corrections to the reference numerals have been made in Figure 3.

Attachment:            Submittal of Drawing Replacement Sheets

## **REMARKS/ARGUMENTS**

### **1.) Claim Amendments**

The Applicant has amended claim 29 to correct a typographical error. Claims 29-56 remain pending in the application.

### **2.) Examiner Objections – Drawings**

The Examiner objected to Figures 1, 2 and 3 of the drawings for not including a “Prior Art” legend, and to certain reference numerals in Figures 2 and 3 as not conforming to the reference numerals specified in the description. The Applicant has amended each of those figures to include a “Prior Art” legend. In order to correct the inconsistencies between the reference numerals in the description and Figures 2 and 3, the Applicant has amended the relevant portions of the description and made changes to Figure 3.

### **3.) Examiner Objections - Claims**

The Examiner objected to claim 29 for a typographical error. The Applicant has amended claim 29 as suggested by the Examiner.

### **4.) Allowable Subject Matter**

The Examiner objected to claims 43, 46, 55 and 56 as being dependent upon a rejected base claim, but indicated they would be allowable if rewritten in independent form, including all of the limitations of their respective base claim and any intervening claims. The Applicant thanks the Examiner for the indication of allowable subject matter. The Applicant, however, believes the base claims are patentable over the prior art of record and, therefore, declines to so amend the claims.

### **5.) Claim Rejections – 35 U.S.C. §103(a)**

The Examiner rejected claims 29-32, 35, 36, 40-42, 44, 47-49, 51 and 54 as being unpatentable over Tamaki, *et al.* (U.S. Patent No. 7,139,527) in view of “Applicant’s admitted prior art” (AAPA); claim 33 as being unpatentable over Tamaki in

view of AAPA and further in view of Toh (U.S. Patent No. 5,987,011); claims 34, 37, and 52 as being unpatentable over Tamaki in view of AAPA and further in view of Fujiwara, *et al.* (U.S. Patent No. 7,352,729); claims 38, 39, 50 and 53 as being unpatentable over Tamaki in view of AAPA and further in view of Apostolopoulos (U.S. Patent Publication No. 2002/0116715); and claim 45 as being unpatentable over Tamaki in view of AAPA and further in view of Kilfoyle, *et al.* (U.S. Patent No. 7,006,461). The Applicant traverse the rejections.

### **Claims 29-53**

Claim 29 recites:

29. A method of performing communication in a two-hop wireless communication network, wherein a base station, at least one mobile station and a plurality of relay stations are engaged in, or in the process of establishing, a communication session, and wherein the relay stations forward signals from the base station to the at least one mobile station, said plurality of relay stations having at least partially overlapping coverage, said method comprising the steps of:

establishing by said at least one mobile station a soft association to said plurality of relay stations by internally selecting a set of relay channels from said number of relay stations, said set of relay channels associated to the relay stations being candidates for use in the communication session;

feeding back from the at least one mobile station, during the communication session, information on the communication quality to the base station; and,

adapting in the base station the transmission to at least one of the relay stations which the mobile station has soft association with, in response to the communication quality feedback from the at least one mobile station. (emphasis added)

The Applicant's invention is directed to solving a specific problem relating to communications in a two-hop wireless communications network; specifically, when a mobile station and a plurality of relay stations are engaged in a communication session wherein the plurality of relay stations have at least partially overlapping coverage. **As the Examiner specifically acknowledges**, "Tamaki fails to teach a plurality of relay stations having at least partially overlapping coverage." If Tamaki fails to teach even the

environment in which Applicant's invention is utilized, how can Tamaki teach the claimed elements of the solution to the problem addressed in that environment?

Contrary to the Examiner's assertion, Tamaki does not teach the use of "soft associations" by mobile stations when communicating with a plurality of relay stations. Thus, Tamaki fails to teach the function of "establishing by said at least one mobile station a soft association to said plurality of relay stations by internally selecting a set of relay channels from said number of relay stations, said set of relay channels associated to the relay stations being candidates for use in the communication session." Moreover, the Examiner pointed to column 6, line 64, through column 7, line 4, as teaching "adapting in the base station the transmission to at least one of the relay stations which the mobile station has soft association with, in response to the communication quality feedback from the at least one mobile station." The Examiner's reading of that portion of Tamaki is incorrect. What Tamaki teaches is the transmission of a pilot signal from a base station to a mobile station and, if the signal-to-noise ratio exceeds a threshold, it is determined that "the transmission path is the *insight* transmission path, and start of relay is determined." (emphasis added) Tamaki defines an "insight" transmission path as a transmission path "in which no obstacles and buildings by which a signal is reflected exist between the transmitter . . . and the receiver." (Column 2, lines 24-28). Thus, the referenced portion of Tamaki is only directed to communications directly between a base station and a mobile station and does not involve either "soft associations" between a mobile station and a plurality of relay stations, nor to adapting communications between a base station and any of such relay stations in response to communication quality feedback from a mobile station that is communication with the relay stations. Thus, the Examiner has not established a *prima facie* case of obviousness of claim 29 over Tamaki in view of Applicant's "admitted prior art."

Whereas independent claims 47 and 51 include limitations analogous to those of claim 29, those claims are also not obvious over Tamaki in view of AAPA. Furthermore,

whereas claims 30-46<sup>1</sup>, 48-50 and 52-53 are dependent from claims 29, 47 and 51, respectively, and include the limitations thereof, they are also not obvious.

### **Claims 36 and 54**

In a particular embodiment of the claimed invention, as recited in claim 36, the step of the base station adapting the transmission, as recited in claim 29, comprises the steps of:

identifying from the feedback conflicting demands from at least two mobile stations regarding the usage of at least one relay station, said two mobile stations having soft association to the same as least one relay station;

initiating an optimization process for resolving the conflicting demands; and,

adapting the transmission at least to the relay stations to which the two mobile stations have soft association, taking into account the result of the optimization process.

In the Examiner's stated reasons for the claim rejections under §103, he refers to claim 36 in paragraph 4 on page 3, but fails to point to any teaching in Tamaki of the elements of claim 36. Thus, the Examiner has not established a *prima facie* case of obviousness of claim 36. Similarly, the Examiner fails to point to any teaching in Tamaki of the elements of claim 54, which recites limitations analogous to those of claim 36. Thus, the Examiner has also not established a *prima facie* case of obviousness of claim 54. Accordingly, the Examiner should either withdraw the unsupported rejection of claims 36 and 54 or provide specific reasons for rejection thereof.

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<sup>1</sup> The Applicant further separately addresses the patentability of claim 36, *infra*.

### **CONCLUSION**

In view of the foregoing amendments and remarks, the Applicant believes all of the claims currently pending in the Application to be in a condition for allowance. The Applicant, therefore, respectfully requests that the Examiner withdraw all rejections and issue a Notice of Allowance for claims 29-56.

The Applicant requests a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,



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